

China's Anti-Access/Area-Denial Strategy and Implications for Special Operations Forces Air Mobility

A Monograph

by

Maj John T. Sophie
United States Air Force



School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

2014-02

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 04/12/2014		2. REPORT TYPE SAMS Monograph		3. DATES COVERED (From - To) Jan 2014 – Dec 2014	
4. TITLE AND SUBTITLE China's Anti-Access/Area Denial Strategy and Implications for Special Operations Forces Air Mobility				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Maj John T. Sophie, U.S. Air Force				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) School of Advanced Military Studies (SAMS) 201 Reynolds Avenue Fort Leavenworth, KS 66027-2134				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Command and General Staff College 731 McClellan Avenue Fort Leavenworth, KS 66027-1350				10. SPONSOR/MONITOR'S ACRONYM(S) CGSC	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT A prerequisite for SOF operations is operational access. Operational access for SOF is achievable in the land, sea, and air domains. In the Asia-Pacific theater, limited land access makes the air and sea domains more important. China's recent modernization challenges US access through the air and sea domain through an Anti-Access/Area-Denial (A2/AD) strategy. This study compares China's A2/AD strategy, doctrine, and military modernization with US strategy and doctrine to determine the impact on US SOF air mobility's capacity to conduct operations in the Asia-Pacific theater. It concludes that China's A2/AD strategy has significantly reduced the operational access of US SOF air mobility to the point where Air Force Special Operations Command (AFSOC) assets are no longer able to provide the access required. The current limitations of AFSOC's aircraft, the limited operational reach and basing options in the Asia-Pacific region, and the challenges associated with US doctrine and joint concepts in an A2/AD environment would likely prevent US SOF air mobility from accomplishing the missions required. To correct this deficiency, the US should look to acquire a low observable mobility aircraft, expand the number of operating bases in the Asia-Pacific theater, and develop a distributed C2 structure.					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 46	19a. NAME OF RESPONSIBLE PERSON
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (include area code) 913-758-3302

Monograph Approval

Name of Candidate: Maj John T. Sophie
Monograph Title: China's Anti-Access/Area Denial Strategy and Implications for Special Operations Forces Air Mobility

Approved by:

_____, Monograph Director
Christopher Marsh, PhD

_____, Seminar Leader
James W. MacGregor, COL

_____, Director, School of Advanced Military Studies
Henry A. Arnold III, COL

Accepted this 4th day of December 2014 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, PhD

The opinions and conclusions expressed herein are those of the student author, and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other government agency. (References to this study should include the foregoing statement.)

ABSTRACT

China's Anti-Access/Area Denial Strategy and Implications for Special Operations Forces Air Mobility, by Maj John T. Sophie, USAF, 44 pages.

Special operations are a critical part of the US approach to war. A prerequisite for SOF operations is the ability to get forces to the objective and enable their freedom of action, known as operational access. Without sufficient operational access, SOF cannot successfully achieve the desired effects. Operational access for SOF is achievable in the land, sea, and air domains. In the Asia-Pacific theater, limited land access makes the air and sea domains more important. China's recent modernization challenges US access through the air and sea domain through an Anti-Access/Area-Denial (A2/AD) strategy. This study compares China's A2/AD strategy, doctrine, and military modernization with US strategy and doctrine to determine the impact on US SOF air mobility's capacity to conduct operations in the Asia-Pacific theater. It concludes that China's A2/AD strategy has significantly reduced the operational access of US SOF air mobility to the point where Air Force Special Operations Command (AFSOC) assets are no longer able to provide the access required. The current limitations of AFSOC's aircraft, the limited operational reach and basing options in the Asia-Pacific region, and the challenges associated with US doctrine and joint concepts in an A2/AD environment would likely prevent US SOF air mobility from accomplishing the missions required. To correct this deficiency, the US should look to acquire a low observable mobility aircraft, expand the number of operating bases in the Asia-Pacific theater, and develop a distributed C2 structure.

Contents

Acronyms	v
Illustrations	vii
Introduction	1
National Interests and Strategy	3
China's National Interests, Policy, and Strategy	4
US National Interests, Policy, and Strategy	9
Potential for Conflict	13
Sources of Tension	13
Planning Scenario	16
Doctrine and Capabilities	18
China's Doctrine	18
China's A2/AD Capabilities	22
US Doctrine and Concepts	26
US SOF Capabilities	35
A2/AD Impact on SOF Air Mobility	39
Challenges and Limitations	39
Recommendations	43
Conclusion	46
Bibliography	47

Acronyms

A2/AD	Anti-Access/Area-Denial
AESA	Active Electronically Scanned Array
AFSOC	Air Force Special Operations Command
ASB	Air-Sea Battle
ASM	Anti-Ship Missile
AWACS	Airborne Warning and Control System
C2	Command and Control
CCJO	Capstone Concept for Joint Operations
CCP	Chinese Communist Party
CMC	Central Military Commission
COIN	Counter Insurgency
DA	Direct Action
DPP	Democratic Progressive Party
DoD	Department of Defense
FID	Foreign Internal Defense
IADS	Integrated Air Defense System
IRBM	Intercontinental Range Ballistic Missile
ISR	Intelligence, Surveillance, and Reconnaissance
JFC	Joint Force Commander
JP	Joint Publication
JTF	Joint Task Force
JOAC	Joint Operational Access Concept
JSOTF	Joint Special Operations Task Force
LO	Low Observable
NMS	National Military Strategy
NSAv	Non-Standard Aviation

NSS	National Security Strategy
PLA	People's Liberation Army
PLAAF	People's Liberation Army Air Force
PLAN	People's Liberation Army Navy
QDR	Quadrennial Defense Review
ROC	Republic of China
ROMO	Range of Military Operations
SAM	Surface-to-Air Missile
SFA	Security Force Assistance
SOF	Special Operations Forces
SOG	Special Operations Group
USAF	United States Air Force
USPACOM	United States Pacific Command
USSCOCOM	United States Special Operations Command
WEZ	Weapon Engagement Zone

Illustrations

Figures

1 South China Sea territorial disputes.6

2 China’s First and Second Island Chains.9

Tables

1 Special Operations Forces core activities.....30

2 Current AFSOC mobility aircraft capabilities.....36

3 Distances from US bases to the center of the Taiwan Strait.....39

Introduction

For decades, the American ability to project military force from the United States to an operational area has gone essentially unopposed. During the Gulf War of 1990-1991, for example, Coalition forces flowed into the operational area unhindered for six months in the build-up to Operation Desert Storm. Coalition forces similarly deployed uncontested into Afghanistan in 2001 for Operation Enduring Freedom and into Kuwait in 2003 for Operation Iraqi Freedom.¹

—Joint Operational Access Concept (JOAC)

The United States has always relied on its Special Operations Forces (SOF) as a key component in conducting military operations. This was especially true in Operation Enduring Freedom where coalition SOF ground troops provided the critical link between US air power and Northern Alliance fighters, trained and advised Afghanistan military forces, and conducted other operations. In future military operations, SOF will continue to be vital to achieving US objectives. However, a prerequisite for SOF operations is the ability to get them to the objective and enable their freedom of action, known as operational access.² Without sufficient operational access, SOF cannot successfully achieve the desired effects.

Special Operations Forces typically achieve operational access in the land, sea, and air domains. In the Asia-Pacific theater, geography makes the air and sea domains more important as land access is limited. China's recent modernization challenges US access through the air and sea domain through an Anti-Access/Area-Denial (A2/AD) strategy. This study compares China's A2/AD strategy, doctrine, and military modernization with US strategy and doctrine to determine the impact on US SOF air mobility's capacity to conduct operations in the Asia-Pacific theater. It concludes that China's A2/AD strategy has significantly reduced the operational access of US

¹ US Department of Defense, *Joint Operational Access Concept* (Washington, DC: Government Printing Office, 2012), 2.

² Ibid., 1.

SOF air mobility to the point where Air Force Special Operations Command (AFSOC) assets no longer possess the access required.

To analyze the impact of China's A2/AD efforts on US SOF air mobility requires more than simply comparing numbers and system capabilities, it requires context. Analyzing a specific aircraft against a specific surface-to-air missile (SAM) provides only a small part of the answer. To develop a more complete understanding of how China's A2/AD strategy influences US SOF air mobility, this study uses a set of major questions for analysis. The four major questions are:

- 1) Under what circumstances would conflict occur between China and the United States?
- 2) What would a conflict between China and the United States look like?
- 3) How would the United States and China employ their military capabilities?
- 4) What are the implications for US SOF air mobility?

The implications of China's A2/AD strategy on US SOF air mobility depend on how China and the United States would employ their forces. To answer the question of how they would employ forces requires a realistic scenario where the two are in conflict. Where this conflict might arise and what it might look like is determined by looking at tensions between the national interests, policies, and strategy of China and the United States. To answer these questions, this study has four main sections.

The first section summarizes the national policies, interests, and strategy of both China and the United States. While a thorough analysis of national interests, policies, and strategy is beyond the scope of this study, this summary and background is required in order to identify potential sources of tension between China and the United States. This section provides the political context required to answer the four major questions. With an understanding of both China and US national interests and strategy, the second section compares each side for sources of tension and lays out a realistic scenario for conflict between the two. It starts with identifying

three main potential sources of tension. It then provides three possible future areas of conflict and selects the Taiwan scenario as the best scenario for analyzing SOF air mobility capabilities. This section answers the first and second questions by explaining under what circumstances there is potential for conflict between the United States and China and what that conflict might look like.

The third section aims to answer the next question, how would China and the United States likely employ their forces? Using the scenario from the second section as context, the monograph surveys China's doctrine and military capabilities to determine how they could and would likely fight. Likewise, it examines US doctrine and joint concepts to see how the United States would fight in the future. This section ends with a review of US SOF air mobility assets and capabilities. The final section synthesizes the doctrine and capabilities information from a specialized air mobility perspective. It identifies three key challenges facing SOF air mobility in a future A2/AD scenario that prevent US SOF from gaining access through the air domain. This section concludes by providing recommendations for each of the identified challenges.

National Interests and Strategy

The first step towards analyzing China's A2/AD strategy on US SOF air mobility is reviewing the national interests of both countries and identifying sources of tension between the two. China's national interests, policies, and perceived threats to those interests provide insight into where the A2/AD strategy originates and why China chose it. Additionally, looking at China's A2/AD strategy in more depth begins to help explain how they would use military force to support their national interests. However, China is only half of the picture. It is important to review US interests, key policies, and strategy in the Asia-Pacific theater as well. With both Chinese and American interests, policies, and strategy broadly reviewed, it is then possible to analyze them for sources of tension in the second section.

China's National Interests, Policy, and Strategy

China's national strategic goals, as outlined in the annual Department of Defense (DoD) report to Congress, are: "perpetuating Chinese Communist Party (CCP) rule, sustaining economic growth and development, maintaining domestic and political stability, defending national sovereignty and territorial integrity, and securing China's status as a great power."³ Like any other country, China faces challenges and threats towards achieving these objectives. China has identified four main issues that threaten its national goals. The first threat is China's relationship with Taiwan. Beijing asserts that Taiwan is part of China and there is only one ruling government with the government seat in Beijing. Taiwan's government, the Republic of China (ROC), does not recognize this claim and threatens China's goal of political stability and extending their sovereignty.⁴ China has identified six "redlines" regarding the use of force in Taiwan:

- 1) Formal declaration or undefined movement towards Taiwan independence.
- 2) Internal unrest in Taiwan.
- 3) Taiwan's acquisition of nuclear weapons
- 4) Delays in cross strait dialogue on unification.
- 5) Foreign intervention in Taiwan's internal affairs.
- 6) Foreign troops stationed on Taiwan.⁵

³ US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2013* (Washington, DC: Government Printing Office, 2013), 15.

⁴ Ian Easton, "China's Military Strategy in the Asia-Pacific: Implications for Regional Stability" (paper presented at the Seminar on China's Military Strategy, Tokyo, September 26, 2013), 4-5, accessed September 9, 2014, http://www.project2049.net/documents/China_Military_Strategy_Easton.pdf.

⁵ US Department of Defense, *Annual Report to Congress*, 55-56.

The East China Sea is another area where China sees a potential threat to its territorial integrity and aim of becoming a great power. Large amounts of oil and natural gas resources lay beneath territories that both China and Japan claim.⁶ It is in China's interest to gain control over the disputed territories in order to gain access to resources that could support its economy, demonstrate its ability and will to maintain territorial integrity, and assert itself as a great power. Similar to the East China Sea, China claims disputed territories in the South China Sea as well. China's policy in the South China Sea claims all territories within the nine-dash line, seen in Figure 1.⁷ China has claimed this area since 1949. As China's relative power and assertiveness has increased in the last few decades, other countries have contested their claim due to the strategic importance of the sea line-of-communication.⁸

A final threat China faces is a potential intervention on the Korean Peninsula. In order to establish China as a regional power, it would likely have to intervene in Korea to ensure any outcomes would be acceptable, if not favorable, to China.⁹ These four threats, combined with China's cautious, if not distrustful, view of US policies and actions, discussed in more detail in the next section, lead to the adoption of a counter-intervention strategy, what the United States calls an A2/AD strategy.¹⁰

⁶ US Department of Defense, *Annual Report to Congress*, 21-22.

⁷ Easton, "China's Military Strategy in the Asia-Pacific," 5.

⁸ Anthony Cordesman, Ashley Hess, and Nicholas S. Yarosh, *Chinese Military Modernization and Force Development: A Western Perspective* (Washington, DC: Center for Strategic and International Studies, 2013), 65.

⁹ Easton, "China's Military Strategy in the Asia-Pacific," 5.

¹⁰ Cortez A. Cooper, *Joint Anti-Access Operations* (Santa Monica, CA: RAND Corporation, 2011), 3.



Figure 1. South China Sea territorial disputes.

Source: Adapted from US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2013*, 79.

The CCP sets China's military strategy and the PLA carries it out. To counter the threats described above, the Central Military Commission (CMC) chose an A2/AD strategy for a variety of reasons. First is the geography in the Asia-Pacific region. Generally a vast maritime environment, there are limited areas to disperse ground troops. Additionally, American or Western forces operating in the region would require a long logistical tail to support operations. The geography in the Asia-Pacific theater, dominated by water and vast distances, is conducive to focusing on denying air and sea access. Second, there are financial advantages to the A2/AD strategy. It is relatively cheap to acquire systems such as SAMs and anti-ship missiles (ASM) that deny the use of the air or sea domains. Finally, gaps in international law allow China to develop and acquire long-range strike capabilities without violating the Intermediate Nuclear Forces Treaty and undermine any diplomatic international effort to deter China's acquisition of these

capabilities.¹¹ While China maintains a “no first use” policy towards nuclear weapons, the delivery systems are suitable for conventional weapons as well and they are able to capitalize on their freedom from the Intermediate Nuclear Forces Treaty restrictions as non-signatories.¹²

China’s strategy of counter-intervention –A2/AD– involves the diplomatic, information, economic, and military instruments of power. While the following discussion focuses on the military aspects of China’s strategy, it is not the only one used.¹³ The two main pillars of China’s A2/AD strategy are active defense and modernization. Active defense, originally described by Mao in 1936 as the use of decisive engagements in order to conduct strategic counter attacks, focuses on offensive strikes to defeat the enemy’s strategic encirclement.¹⁴ Using active defense, China would not conduct the first attack strategically, but it might use preemptive strikes at the operational level to seize the initiative. It is important to note that strategic attacks are not limited to the use of military force. China may view diplomatic or economic attacks as the opening strategic attack and therefore require the use of military preemptive strikes.¹⁵ The aim of active defense is to deter and counter intervention in the Asia-Pacific region by a third party, particularly

¹¹ Easton, “China’s Military Strategy in the Asia-Pacific”, 6-11.

¹² US Department of Defense, *Annual Report to Congress*, 30.

¹³ David J. Berteau and Michael J. Green, *U.S. Force Posture Strategy in the Asia Pacific Region: An Independent Assessment* (Washington, DC: Center for Strategic and International Studies, 2012), 40.

¹⁴ Mao Tse-Tung, *Selected Works of Mao Tse-Tung, Vol. 1* (Peking: Foreign Languages Press, 1975), 205-208.

¹⁵ M. Taylor Fravel, “The Evolution of China’s Military Strategy: Comparing the 1987 and 1999 Editions of *Zhanlǜxue*,” in *China’s Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People’s Liberation Army*, eds. James Mulvenon and David Finkelstein (Alexandria, VA: The CNA Corporation, 2005), 86-87.

the United States, through the projection of power along China's periphery and potentially counter attacks worldwide.¹⁶

Modernization, the second pillar of A2/AD, supports China's ability to fight a regional high-intensity, short-duration conflict. China is pursuing modernization through domestic military development and production, foreign procurement, and industrial espionage and reverse engineering.¹⁷ Three particularly relevant trends in China's modernization are efforts towards strike capability on US air bases, acquisition of modern SAM systems, and development of a 4th generation air force.¹⁸ In addition to these trends, the PLA is also modernizing its maritime surface and subsurface capabilities, including the development of aircraft carriers. However, as mentioned earlier, weapon systems are only part of the equation.

China is also modernizing its doctrine and institutions. China's doctrine, discussed in more detail in a later section, has undergone a significant revision in the last two decades. The final aspect of modernization is in the military institutions where China is reforming their research and development process as well as the logistics and personnel systems.¹⁹ The aim of modernization is to enable active defense in all domains, including cyber, out to the second island chain, seen in Figure 2, by provide overlapping capabilities.²⁰

¹⁶ US Department of Defense, *Annual Report to Congress*, 32.

¹⁷ Ibid., 22, 45, 51.

¹⁸ *Hearing before the U.S.-China Economic and Security Review Commission*, 111th Cong., 2d sess., May 20, 2010, 156.

¹⁹ David M. Finkelstein, "Thinking About the PLA's Revolution in Doctrinal Affairs," in *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army*, eds. James Mulvenon and David Finkelstein (Alexandria, VA: The CNA Corporation, 2005), 8.

²⁰ Cordesman, Hess, and Yarosh, *Chinese Military Modernization and Force Development*, 66.



Figure 2. China's First and Second Island Chains.

Source: Adapted from map from University of Texas Library, "China-Military-First and Second Island Chains," accessed on September 8, 2014, http://www.lib.utexas.edu/maps/middle_east_and_asia/china_first_and_second_island_chains_2008.jpg.

China views US intervention in the region as an attempt to contain China's influence and stifle their growth. They have adopted a strategy of A2/AD in order to deter US involvement in China's affairs. Through modernization and active defense, China aims to develop the capability to deny the US access to the region should a conflict emerge.

US National Interests, Policy, and Strategy

Like China, the United States has national interests in the Asia-Pacific region. The enduring US interests outlined in the 2010 National Security Strategy (NSS) are the security of the United States and its allies, a strong economy and open global economic system, respect for

universal values, and an international order that promotes peace.²¹ Four key historic agreements, and a recent emphasis by the Obama administration, highlight key US interests in the Asia-Pacific region. The Taiwan Relations Act (TRA) of 1979 outlines the US policy towards Taiwan. The TRA act formally recognizes the Peoples Republic of China (PRC) as the government of China on the condition that the PRC resolves Taiwan's future status peacefully. The TRA also dictates that the United States will "maintain the capacity of the United States to resist any resort to force or other forms of coercion that would jeopardize the security, or the social or economic system, of the people on Taiwan."²²

The United States has an alliance with Japan established by the Treaty of Mutual Cooperation and Security in 1961. Under this treaty, the United States pledges to defend Japan against attack in return for establishing US military bases in Japan.²³ Like the treaty with Japan, the Mutual Defense Treaty signed by the Republic of Korea and the United States in 1953 establishes an agreement that if either one is attacked, the other will act to support.²⁴ Finally, in 1972, through a joint statement by the United States and the People's Republic of China known as the Shanghai Communiqué, the United States acknowledged that there is one China, of which

²¹ White House, *National Security Strategy* (Washington, DC: Government Printing Office, 2010), 17.

²² Taiwan Relations Act. Public Law 96-8, codified at US Code 22 (1979) § 3301, accessed May 14, 2014, <http://www.gpo.gov/fdsys/pkg/USCODE-2010-title22/pdf/USCODE-2010-title22-chap48.pdf>.

²³ "U.S. Relations with Taiwan," US Department of State, February 12, 2014, accessed June 15, 2014, <http://www.state.gov/r/pa/ei/bgn/35855.htm>.

²⁴ "U.S. Relations with South Korea," US Department of State, January 31, 2014, accessed June 15, 2014, <http://www.state.gov/r/pa/ei/bgn/2800.htm>.

Taiwan was a part.²⁵ Relations with Japan, South Korea, and Taiwan are certainly much more complex than the summary of key agreements discussed above, but they are representative of US ties to the region. Other US policies such as the Trans-Pacific Partnership Initiative and alliances with Australia, the Philippines, and Thailand also tie US interests to the Asia-Pacific region.

To support US national interests, the Obama administration has rebalanced their focus towards the Asia-Pacific theater and established a strategy “that harnesses all elements of US power—military, political, trade and investment, development and our values.”²⁶ The 2010 NSS emphasizes cooperation, promoting democracy and open foreign markets, and pursuing decisions through coalitions. The US national strategy also seeks to strengthen relationships and alliances with Japan, South Korea, Thailand, Australia, and the Philippines while reducing tension between Taiwan and the PRC.²⁷ The 2011 National Military Strategy (NMS), 2012 Defense Strategic Guidance, and the 2014 Quadrennial Defense Review (QDR) capture the US military strategy, based on this guidance from the NSS.

The 2012 strategic guidance outlines the ten missions of the US Armed Forces. One of those missions is to deter and defeat aggression by maintaining the capability to impose costs on the aggressor that they are unwilling to pay. In order to deter aggression, a second mission is to project power into areas where other nations challenge US access. To ensure the United States is

²⁵ “Joint Statement Following Discussions With Leaders of the People’s Republic of China,” US Department of State: Office of the Historian, February 27, 1972, accessed September 9, 2014. <https://history.state.gov/historicaldocuments/frus1969-76v17/d203>.

²⁶ Tom Donilon, “The United States and the Asia-Pacific in 2013” (speech, The Asia Society, New York, March 11, 2013), accessed June 10, 2014, <http://www.whitehouse.gov/the-press-office/2013/03/11/remarks-tom-donilon-national-security-advisory-president-united-states-a>.

²⁷ White House, *National Security Strategy*, 5-46.

able to project power into A2/AD environments, it “will invest as required” to develop a new stealth bomber, better missile defense, and more resilient space-based capabilities.²⁸

The 2014 QDR provides a more detailed view of how the United States will carry out the national strategy and accomplish its mission of power projection. To meet the challenges in the new strategic environment, the United States will position naval forces forward to key areas, tailor the combination of forces deployed, including regionally aligning forces to the Asia-Pacific, and continue to pursue access agreements. To ensure its ability to project power, the United States will focus on seven areas.

In the air and sea domains, the United States is investing in the F-35 and undersea warfare capabilities to counter A2/AD challenges. In the land domain, the United States is refocusing efforts on forcible entry and conducting large-scale combined arms maneuvers. In the space domain, the United States is enhancing the resilience of Intelligence, Surveillance, and Reconnaissance (ISR) systems in order to deter and defeat potential attacks. Likewise, the United States is expanding its airborne ISR capability in contested environments. To counter A2/AD systems, the United States Air Force (USAF) and US Navy are procuring enhanced air-to-ground missile and long-range ASM systems while maintaining a robust Tomahawk Land Attack Cruise Missile capability. SOF will grow in size and have a persistent forward presence. Finally, the United States is improving the resiliency of overseas bases to reduce their vulnerability to attack.²⁹

The US strategy supports its interests in the Asia-Pacific region of securing their allies, promoting an open global economy, and growing an international order through strong alliances.

²⁸ US Department of Defense, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense* (Washington, DC: Government Printing Office, 2012), 4.

²⁹ US Department of Defense, *Quadrennial Defense Review 2014* (Washington, DC: Government Printing Office, 2014), 23-24, 36-38.

Supporting these interests requires a US presence in the region, access to the global commons, and strong relationships with regional allies. The United States aims to accomplish this through diplomatic, economic, information, and military means. Militarily, the United States is developing concepts and technology to overcome A2/AD challenges in a resource-constrained environment.

Potential for Conflict

The previous section provided an understanding of Chinese and American national interests and strategy. It is now possible to answer the third and fourth major questions by comparing the interests and strategies of China and the United States to determine where conflict might arise and what it might look like. This section serves two purposes. First, it analyzes the interests and strategy of China and the United States and identifies three sources of tension and potential areas where conflict could occur. The second purpose is to select and describe in more detail one of the possible conflicts in order to provide context for the last two sections.

Sources of Tension

There are three main sources of tension between the United States and China. Competing interests, competing strategies, and distrustful perceptions of each other create friction between the two countries and could lead to future conflict. One of China's national interests is securing national sovereignty and territorial integrity. The United States has an interest in an open economy and ensuring access to the global commons. Tension exists between the two because each side has a different view of what areas are global commons.

A second source of tension exists between the two chosen strategies. China is pursuing an A2/AD strategy through modernization and active defense to deter and prevent the United States from intervening during a conflict. With the United States rebalancing to the Asia-Pacific theater and developing concepts and equipment to defeat China's A2/AD strategy, both sides could

potentially end up in a security dilemma where each side races to gain an advantage over the other.

Finally, there is tension between China and the United States based on their perceptions of each other. The United States views China as deceptive and is cautious about its development of capabilities that are a potential threat to US allies in the region. President Obama highlighted this view when he said, “China’s economic rise and military reach worries its neighbors.”³⁰ China is equally distrustful of US intentions. Many experts in China view US activities in the region as a containment strategy similar to the Cold War.³¹ Other Chinese experts are skeptical about the US rebalance to the region and see it as an offensive strategy to limit China’s rise to power.³²

These three sources of tension, along with historic disputes in the region, lead to three areas for potential conflict. The first is the East China Sea where China, Taiwan, and Japan dispute the Senkaku Islands and exclusive economic zones. Recent accusations of violations and increased activity by all parties make this a potential conflict area.³³ If tensions were to escalate between China and Japan, the United States may intervene under the Mutual Defense Treaty with Japan. Similarly, if China decides to become more aggressive with its claim over the South China Sea, the United States may be compelled to intervene militarily to support its allies and ensure the global commons remain open.

³⁰ Barack Obama, “U.S. Military Academy-West Point” (Presidential speech, United States Military Academy Commencement Ceremony, Westpoint, NY, May 28, 2014, accessed June 3, 2014, <http://www.whitehouse.gov/the-press-office/2014/05/28/remarks-president-united-states-military-academy-commencement-ceremony>).

³¹ Berteau and Green, *U.S. Force Posture Strategy in the Asia Pacific Region*, 40.

³² Cordesman, Hess, and Yarosh, *Chinese Military Modernization and Force Development*, 24.

³³ US Department of Defense, *Annual Report to Congress*, 21-22.

While conflict over the East China Sea and South China Sea territories may be more likely in the near term, a future Taiwan conflict provides the best scenario for analysis for several reasons. First, Taiwan is the primary focus of China's security policy and is the People's Liberation Army (PLA) primary warfighting scenario.³⁴ As the primary focus, there is greater fidelity in information and research on how China would act in a Taiwan conflict than there is with the other scenarios. Using the best, unclassified information available to analyze SOF air mobility capabilities in a Chinese A2/AD environment provides a more accurate evaluation. Second, there is recent historical precedence for conflict over Taiwan. In 1995, tensions escalated in the Taiwan Strait over the growing movement in Taiwan for independence. In a show of resolve for a one-China policy, the PRC conducted missile tests near Taiwan. The United States responded by deploying two aircraft carrier battle groups to the region.³⁵ While the US and China settled the crisis diplomatically, it left China with a sense of resentment and humiliation and the motivation to avoid US interference in the future.³⁶ China's emphasis on Taiwan and corresponding amount of information, the competing Chinese and American strategies, and the recent historical precedent make a Taiwan conflict an ideal scenario for analyzing SOF air mobility's challenges in an A2/AD environment.

³⁴ "Jane's Sentinel Security Assessment – China and Northeast Asia," IHS Jane's, January 28, 2014, accessed June 16, 2014, <https://janes.ihs.com>; Andrew Scobell and Andrew J. Nathan, "China's Overstretched Military," *The Washington Quarterly* 35, no. 4 (Fall 2012): 140, accessed June 15, 2014, <http://dx.doi.org/10.1080/0163660X.2012.726438>.

³⁵ Wallace J. Thies and Patrick C. Bratton, "When Governments Collide in the Taiwan Strait," *The Journal of Strategic Studies* 27, no. 4 (December 2004): 572-576, accessed June 15, 2014, <http://dx.doi.org/10.1080/1362369042000314510>.

³⁶ Michael Flaherty, "Red Wings Ascendant: The Chinese Air Force Contribution to Antiaccess," *Joint Force Quarterly* 60 (1st Quarter 2011): 95.

Planning Scenario

With Taiwan selected as the planning scenario, it is important to examine what that conflict might look like and how China and the United States might respond. Defining the scenario provides the context for analyzing Chinese and American doctrine and capabilities in the next section and identifying the challenges and limitations to SOF air mobility in the final section. The scenario description includes a vignette detailing the political background of the conflict and provides key assumptions for analysis. A study by the Center for Strategic and International Studies in 2013 is the basis of this vignette. In this study, the analysts developed ten different scenarios that are possible in the Asia-Pacific region. For the purposes of this study, the Taiwan counter-lodgment scenario is appropriate. The scenario is also consistent with the Department of Defense assessment of China's possible courses of action against Taiwan.³⁷

Taiwan continues to garner the focus of China and the PLA. While China has agreed to resolve its dispute with Taiwan peacefully, they have listed so-called "redlines" that, if crossed, would result in the use of force. As discussed above, one of those redlines is a formal declaration or undefined movement towards independence as in the 1995 crisis. In this scenario, Taiwan's Democratic Progressive Party (DPP) has returned to power and has increased its rhetoric advocating for an independent Taiwan. In response, China begins conducting covert action against the DPP to undermine their efforts and destabilize the Taiwan government through pro-unification groups in Taiwan. As these groups conduct actions against Taiwanese leaders, violence escalates and the pro-unification groups begin to gain control in larger areas of Taiwan. To maintain control, the Taiwan government uses its armed forces, which leads to China providing more overt and direct support and ultimately intervention by its military to protect

³⁷ US Department of Defense, *Annual Report to Congress*, 56.

the “liberated” areas. To secure the Taiwanese government and evacuate thousands of foreign nationals, the United States conducts a limited military intervention.³⁸

In addition to the vignette, a few key assumptions drive the development of the scenario. First is that there will be a long period of heightened concern. As violence escalates in Taiwan and China increases its support of pro-unification groups, the United States would likely have a year or more warning before the PLA intervened in Taiwan. While the movement towards independence crosses one of China’s redlines, they would delay using the PLA as long as possible hoping that they can achieve their objective without the use of force. While they feel that they would win a brute force occupation, the US response would be severe and could lead to a greater global conflict with the United States.³⁹ The second assumption is that Taiwan and surrounding areas would be a non-permissive environment for the United States. In addition to diplomatic and informational efforts to deter US intervention, the PLA would use military means available to deny US forces access to Taiwan and prohibit operations in the region. Another assumption is that China and the United States would keep the conflict limited to Taiwan and not escalate it beyond the region. To keep the crisis from escalating, China and the United States would avoid launching conventional and nuclear strikes on each other’s mainland. However, both sides would conduct covert and clandestine special operations. China would initially avoid striking US bases in Japan and Korea, but once the US military enters the conflict these bases would be at risk under China’s active defense strategy. A final assumption is that China will fight

³⁸ Nathan Freier, *Beyond the Last War: Balancing Ground Forces and Future Challenges Risk in USCENTCOM and USPACOM* (Washington, DC: Center for Strategic and International Studies, 2013), 121-122.

³⁹ Mark A. Stokes, “The Chinese Joint Aerospace Campaign: Strategy, Doctrine, and Force Modernization,” in *China’s Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People’s Liberation Army*, eds. James Mulvenon and David Finkelstein (Alexandria, VA: The CNA Corporation, 2005), 227.

this conflict without mobilizing the entire country. China views the likelihood of total war with the United States as remote and would likely fight with the resources on hand.⁴⁰

Doctrine and Capabilities

In the first section, this study examined the Chinese and American national interests and strategies in order to answer why conflict is possible between China and the United States and what that conflict might look like. In this section, the study answers the second major question of how China and the United States would employ their forces in the scenario described above. It answers this question by examining the doctrine and capabilities of China's military, specifically the A2/AD systems, and the doctrine and capabilities of US SOF air mobility that would likely operate in the scenario. Looking at how each side might employ their forces and what those forces are capable of enables the analysis to answer the core question about US SOF air mobility's challenges and limitations.

China's Doctrine

Whereas China's strategy establishes under what conditions they would employ military force, Chinese doctrine provides insight into how they might employ military force. There are, however, a few difficulties in examining Chinese doctrine. First is the closed nature of China and their desire to avoid transparency. There is no Joint Electronic Library for Chinese doctrine. A second problem Americans have understanding Chinese doctrine comes from translation difficulties and a different cultural perspective. Often there are terms that have no direct translation into English or have different meanings. Trying to translate them into concepts

⁴⁰ Dean Cheng, "Zhanyixue and Joint Campaigns," in *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army*, eds. James Mulvenon and David Finkelstein (Alexandria, VA: The CNA Corporation, 2005), 112.

understandable in English is difficult. Finally, China's doctrine is constantly evolving. It is difficult to determine how developed they are in their doctrinal concepts. While the United States has a few decades' head start on their development of joint doctrine, it does not mean the PLA is decades behind.⁴¹

In 1999, the Chairman of the Central Military Commission, Jiang Zemin, issued a new set of guidelines for PLA operations called New Generation Operations Regulations. These regulations are a series of at least six capstone publications. The six publications address the essentials of joint campaigns, army campaigns, navy campaigns, air force campaigns, campaigns of the Second Artillery Corps, and campaign logistics. While these guidelines are not available outside the PLA, five key concepts are found in other doctrinal documents such as *Zhanlüexue* [The Science of Strategy], *Zhanyixue* [The Science of Campaigns], and *Hetong zhanshuxue jiacheng* [A Course of Study in Combined Arms Tactics].⁴²

The first concept, already mentioned above, highlights the desire to conduct joint operations. After observing the United States' success in Operation Desert Storm, the PLA began revising their doctrine to include joint operations.⁴³ The PLA would achieve some level of joint integration in the Taiwan scenario but a single service would typically conduct individual operations.

The second key concept is organization and command structure. Through the CMC, the CCP Central Committee commands the PLA, PLAN (People's Liberation Army Navy), PLAAF

⁴¹ Finkelstein, "Thinking About the PLA's Revolution in Doctrinal Affairs," 10, 18-19, 27.

⁴² A more appropriate translation of *zhàn lüè xué* (战略学) is [The Study of Strategy] and *zhàn yì xué* (战役学) is [The Study of Operations or Campaigns].

⁴³ Finkelstein, "Thinking About the PLA's Revolution in Doctrinal Affairs," 10-12, 19.

(People's Liberation Army Air Force), and Second Artillery Corps. China organizes its ground forces into military regions with each region having its own command structure. The PLAAF and PLAN operate under dual leadership. During peacetime, they fall under their service headquarters. During wartime, they fall under the military region command structure. The Second Artillery Corps, one of the least transparent organizations, has a separate chain of command.⁴⁴ During joint operations, the Chinese recognize that a fixed command and control (C2) structure will not work and see the need for a flexible system depending on the situation.⁴⁵ How well they will be able to organize joint C2 remains unknown. Related to their organizational structure is their use of the operational level of war. Since the 1999 release of new guidelines, the PLA began using war zones and campaigns as an operational framework. In this study's scenario, the PLA would establish a war zone encompassing the Taiwan region with a campaign plan executed by a Group Army (similar to a US Army Corps), a military region air force, and one of three PLAN fleets.⁴⁶

Another key aspect of Chinese doctrine is its emphasis on preemptive strikes. As discussed earlier with respect to China's strategy, Chinese doctrine emphasizes the need for preemptive strikes to seize the initiative. This is a change from their earlier principle of accepting the first blow. Again, based on their analysis of Operation Desert Storm, the Chinese feel they have to deny the United States time to build up forces and project them into the region.⁴⁷ In the

⁴⁴ Kenneth Allen and Maryanne Kivlehan-Wise, "Implementing PLA Second Artillery Doctrinal Reforms," in *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army*, eds. James Mulvenon and David Finkelstein (Alexandria, VA: The CNA Corporation, 2005), 167-169.

⁴⁵ Dean Cheng, "*Zhanyixue* and Joint Campaigns," 108.

⁴⁶ Finkelstein, "Thinking About the PLA's Revolution in Doctrinal Affairs," 9-10.

⁴⁷ Jianxiang Bi, "Joint Operations: Developing a New Paradigm," in *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation*

Taiwan scenario, once the United States intervenes militarily in the conflict, China would likely conduct preemptive strikes on US forces and overseas bases. The Second Artillery Corps, under the command of the Firepower Coordination Center at the war zone command level, would conduct preemptive missile strikes on US runways, taxiways, weapons storage facilities, and key command and control infrastructure in theater. It is important to note that China views the use of electronic warfare as an integral part of their doctrine. Preemptive strikes would not be limited to kinetic operations but would include electronic and cyber-attacks on key US systems.⁴⁸

A fourth key aspect of PLA doctrine is their Joint Anti-Air Raid Campaign “designed as the cornerstone to countering US military intervention.”⁴⁹ Under this concept, China uses a symmetrical approach to warfare. The PLAAF, supported by the Second Artillery Corps, is responsible for attacking the adversary’s airpower and air defense while the PLAN is responsible for striking naval targets. This is how they would likely employ their forces in the Taiwan scenario. Contrary to US doctrine, discussed below, this symmetrical approach may limit China’s ability to execute its A2/AD strategy.

The final key doctrinal concept is China’s view of the enemy as comprising a system of four concentric rings.⁵⁰ This is an adaptation of John Warden’s concept for the US air campaign during Desert Storm.⁵¹ Adopting Warden’s idea is consistent with China’s embracing of lessons

Army, eds. James Mulvenon and David Finkelstein (Alexandria, VA: The CNA Corporation, 2005), 47-48.

⁴⁸ US Department of Defense, *Annual Report to Congress*, 37.

⁴⁹ *Hearing before the U.S.-China Economic and Security Review Commission*, 52.

⁵⁰ Stokes, “The Chinese Joint Aerospace Campaign,” 262.

⁵¹ John A. Warden III, *The Air Campaign* (San Jose, CA: toExcel Press, 2000), 145.

learned from the 1991 conflict.⁵² In the Chinese concept, as described by a prominent PLA strategist, the inner most ring is the enemy's C2 system. Next is the theater sustainment and support network followed by operational support assets such as artillery and aviation. In the outermost ring are the combat units. In the Taiwan conflict, China's initial strikes would be concentrated on the innermost ring using air strikes by the PLAAF, missile strikes by the Second Artillery Corps, and cyberspace attacks to paralyze the US C2 system and support network.⁵³

China's A2/AD Capabilities

This survey of China's military focuses on the A2/AD capabilities that influence US SOF air mobility. It includes China's systems and their capability relative to US SOF aircraft. It covers applicable systems in the air, land, sea, space, and cyber domains. China's capabilities in the air domain fall into two groups, aircraft and air defense. Currently, the PLAAF is able to employ 330 4th generation fighter aircraft in a Taiwan conflict with the potential of increasing this to 1,000 aircraft.⁵⁴ These fighters include the Russian-produced Su-27 and Su-30 Flanker as well as the Chinese produced J-10 Firebird and J-11 Flanker.⁵⁵ These aircraft have a combat radius of

⁵² Dean Cheng, "Chinese Lessons From the Gulf Wars," in *Chinese Lessons from Other Peoples' Wars*, eds. Andrew Scobell, David Lai, and Roy Kamphausen (Carlisle, PA: Strategic Studies Institute, 2011), 153, accessed September 2, 2014, <http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB1090.pdf>.

⁵³ Stokes, "The Chinese Joint Aerospace Campaign: Strategy, Doctrine, and Force Modernization," 262.

⁵⁴ US Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2013*, 76; Jeff Hagen, *Potential Effects of Chinese Aerospace Capabilities on U.S. Air Force Operations* (Santa Monica, CA: RAND Corporation, 2010), 4.

⁵⁵ US Department of Defense, *Annual Report to Congress*, 35.

roughly 900 NM and are capable of carrying a variety of air-to-air and air-to-ground weapons. They can attack targets during day, night, and all weather conditions and have look-down/shoot-down capability giving them the ability to target low flying aircraft.⁵⁶ These fighter aircraft are on par with the US-produced F-15, F-16, and F-18.⁵⁷

In 2011, the PLAAF conducted the maiden flight of the new J-20 stealth aircraft. Information about this new 5th generation aircraft is scarce, but it appears similar in capability to the F-22. The latest assessment expects the J-20 to reach initial operational capability no earlier than 2018. The PLAAF is also developing a second stealth fighter possessing greater offensive capability. Their goal is to shift from a defensive territorial air force to one with offensive and defensive capability to defend against US 5th generation aircraft.⁵⁸ Despite capable fighter aircraft, the PLAAF has limited air combat potential due to a lack of training and inadequate C2 structures.⁵⁹

To support their fighter aircraft, China can employ up to four KongJing-2000 airborne early warning aircraft similar to the E-2 Hawkeye and airborne warning and control system (AWACS). The KongJing-2000 has an active electronically scanned array (AESA) radar. The AESA radar is highly resistant to jamming and gives the KongJing-2000 a long range, passive

⁵⁶ US Army TRADOC G-2. *Worldwide Equipment Guide Volume 2: Airspace and Air Defense Systems* (Washington, DC: Government Printing Office, 2011), 3-31.

⁵⁷ *Hearing before the U.S.-China Economic and Security Review Commission*, 50.

⁵⁸ US Department of Defense, *Annual Report to Congress*, 35, 66-67.

⁵⁹ Bi, "Joint Operations," 67.

detection capability.⁶⁰ Improved low altitude coverage and long detection ranges would enable the KongJing-2000 to detect low flying aircraft in the Taiwan scenario.

In addition to their fighter aircraft, the PLAAF is modernizing its bomber force. China has approximately 600 bombers and attack aircraft, 160 of which are in range of Taiwan.⁶¹ China's primary bomber, the H-6 has a combat radius of 970 NM, which puts bases in Japan, South Korea, and the Philippines within range. The H-6 is capable of delivering up to twelve 500kg bombs. However, it has poor night and low-level capability.⁶² China is currently working on upgrading its bomber fleet to carry air-launched cruise missiles that will give the bombers a standoff capability.⁶³

China's integrated air defense system (IADS) is one of the most advanced in the world. China uses a multilayered IADS including weapons, early warning and detection systems, and a command and control network. The weapons portion of their IADS is comprised of Russian-produced SA-10 and SA-20 PMU1/PMU2 missile systems as well as the Chinese-produced HQ-9.⁶⁴ These systems are capable of engaging aircraft and cruise missiles out to 80 NM.⁶⁵ If placed near the coast towards Taiwan, these systems would reach across the strait to Taiwan's northwestern shore. The naval variant, the SA-N-20, is capable of extending this coverage

⁶⁰ *Hearing before the U.S.-China Economic and Security Review Commission*, 90.

⁶¹ US Department of Defense, *Annual Report to Congress*, 76.

⁶² US Army TRADOC G-2. *Worldwide Equipment Guide Volume 2: Airspace and Air Defense Systems* , 3-41.

⁶³ US Department of Defense, *Annual Report to Congress*, 35.

⁶⁴ *Ibid.*

⁶⁵ US Army TRADOC G-2. *Worldwide Equipment Guide Volume 2: Airspace and Air Defense Systems*, 6-74.

further. Two of China's modernization efforts aimed at increasing their IADS coverage are the acquisition of the Russian S-400 SAM system with a range of 215 NM and upgrades to their HQ-9 which would give it a range of 105 NM. These increased ranges would extend their engagement ranges to cover Taiwan. However, US estimates do not expect them to be operational until 2017.⁶⁶

In the land domain, China's primary A2/AD capability resides in its missile systems. The Second Artillery Corps employs a variety of conventionally armed ballistic missiles, ground- and air-launched land-attack cruise and anti-ship missiles. China has over 1,100 short-range ballistic missiles with a range of 1,000km; Kadena Airbase is within this range. China's medium-range ballistic missiles have a range up to 3,000km putting all of South Korea and Japan within range. The intercontinental-range ballistic missiles (IRBM) give China the ability to strike targets over the horizon out to 5,000km. These IRBMs are capable of striking Anderson Air Force Base in Guam. In addition to these ballistic missiles, China has the CJ-10 land-attack cruise missile capable of precision standoff strikes and the DF-21 anti-ship ballistic missile capable of striking US aircraft carriers out to 1,500 km.⁶⁷ China's Second Artillery Corps missile units are mobile, highly-trained and capable of carrying out strikes against regional bases, logistics facilities, and other key infrastructure under virtually any condition.⁶⁸

The maritime domain and the PLAN are at the front of China's A2/AD strategy and modernization. China's goal for the PLAN is to extend combat power beyond the second island chain and, as they grow in capability, to extend combat power into the Western Pacific. China is focusing efforts on sub-surface warfare and maritime aircraft to project combat power. The first

⁶⁶ US Department of Defense, *Annual Report to Congress*, 35, 67-68, 83.

⁶⁷ Ibid., 34, 42, 81.

⁶⁸ Bi, "Joint Operations," 66.

Chinese aircraft carrier, *Liaoning*, could reach initial operating capability as early as 2015. The PLAN has demonstrated the ability to launch and recover fighter aircraft from the *Liaoning*. Once operational, China will be able to project air power up to 800km from the carrier. The increased maritime capabilities will support China's desire to deter third party intervention in the South China Sea, Taiwan Strait, or East China Sea and enable the PLAN to secure China's key sea lines-of-communication.

The PLA recognizes the growing importance of the space and cyber domains. In the space domain, China is growing its space-based imaging and remote sensing capability by increasing the number of satellites in orbit. They also have developed an offensive space capability. In 2007, China successfully demonstrated their anti-satellite missile by shooting down a Chinese satellite. China's use of the cyber domain has grown significantly in recent years. They have modernized their ISR data sharing and command automation tools to increase their ability to operate more decentralized. However, they are unable to realize the full potential of their technology due to doctrinal and personnel limitations and would still rely on a generally centralized control in the Taiwan scenario. The PLA also sees the cyber domain as suitable for offensive operations. In the Taiwan scenario, part of China's preemptive strikes at the center ring would include cyber-attacks. These attacks would look to exploit US systems to gain information and disrupt US logistical networks to slow their ability to respond to the crisis.⁶⁹

US Doctrine and Concepts

To understand how the US military in general, and SOF in particular, might fight in the Taiwan scenario, this study reviews two key groups of documents. The first is the current doctrine in the Joint Publication (JP) series. Beginning with JP 1, *Doctrine for the Armed Forces*

⁶⁹ US Department of Defense, *Annual Report to Congress*, 33-34, 36, 65.

of the United States, the JP series provides current guidance for employment of the US Armed Forces. It combines US military experience with theory and outlines how the US military plans to operate. The second sets of documents are joint concepts about how the United States might operate in the future. While not part of official doctrine, these concepts represent the latest thinking on employment of US forces in the future.

Key aspects of current doctrine include how the United States would organize its forces, how it would frame the Taiwan conflict, and what missions SOF would be tasked to perform. These aspects fundamentally answer the question, how might the United States fight in the Taiwan scenario? The first key aspect of US doctrine is how it organizes its forces. The United States organizes its forces functionally and geographically. Geographically, Taiwan falls under the responsibility of United States Pacific Command (USPACOM). Under USPACOM are subcomponents from the Army, Navy, Air Force, Marines, and Special Operations.⁷⁰ Special Operations Command Pacific, the sub-unified command under USPACOM, consists of Army Special Forces from the 1st Special Forces Group, Navy Special Warfare Unit One, and AFSOC's 353rd Special Operations Group (SOG).⁷¹ The 353rd SOG, the focal point for all Air Force special operations in the Pacific theater, provides USPACOM with SOF air mobility.⁷² In the Taiwan scenario, the DoD might organize its forces into a Joint Task Force (JTF) under the

⁷⁰ Andrew Feickert, *The Unified Command Plan and Combatant Commands: Background and Issues for Congress* (Washington, DC: Congressional Research Service, 2013), 47-49.

⁷¹ "Special Operations Command, Pacific," SOCPAC, accessed June 4, 2014, <http://www.socpac.socom.mil/default.aspx>.

⁷² 353rd Special Operations Group Units," 353rd SOG, accessed June 4, 2014, <http://www.353sog.af.mil/units/index.asp>.

command of a single Joint Force Commander (JFC). The DoD might organize SOF into a Joint Special Operations Task Force (JSOTF) subordinate to the JFC. The JSOTF would consist of the four service components with SOF air mobility falling under the Air Force special operations component.⁷³ While the majority of the Air Force special operations component would come from the 353rd SOG, United States Special Operations Command (USSOCOM), a functional command responsible for SOF forces in the United States, would provide additional forces to the JSOTF. To ensure coordination and synchronization with conventional forces, the JSOTF provides liaison officers to the other subcomponents under the JTF.⁷⁴

The second key aspect from joint doctrine is how the United States frames operations. JP 1, *Doctrine for the Armed Forces of the United States*, provides insight into how the United States would frame the Taiwan conflict. It is the capstone doctrine that links US strategy and doctrine. JP 1 describes two fundamental strategies in war, a strategy of annihilation and a strategy of erosion. An annihilation strategy aims to destroy the enemy's military capability so they are unable to resist. The strategy of erosion aims to raise the cost of resistance to the point where the enemy will accept US political objectives. In the Taiwan scenario, the United States would likely adopt a strategy of erosion over a strategy of annihilation based on the assumption that there is a point where China would withdraw forces from Taiwan without having met its objectives because the cost is too great. JP 1 uses a range of military operations (ROMO) construct to visualize the various ways in which the military instrument of power may be used. In the ROMO construct, the United States would categorize the Taiwan conflict as a major operation or campaign.

⁷³ Joint Publication (JP) 3-05, *Special Operations* (Washington, DC: Government Printing Office, 2011), III-2 to III-8, III-13.

⁷⁴ Joint Publication (JP) 1, *Doctrine for the Armed Forces of the United States* (Washington, DC: Government Printing Office, 2013), III-2, IV-3 to IV-11.

As a major operation or campaign, the United States would frame the Taiwan scenario as a combination of “offense, defense, and stability operations through six phases.”⁷⁵ Phase 0 is a continuous process where the United States aims to influence behavior and maintain operational access. Phase 0 includes US actions prior to the start of the Taiwan scenario. Once China begins to influence Taiwan through covert action, the United States would transition to Phase I, deter. During Phase I, the United States would use flexible deterrent options, such as moving a carrier battle group into the region, in an attempt to deter China from continuing its actions in Taiwan.

The United States would transition to Phase II once the PLA intervened on Taiwan and deterrence had failed. During Phase II, US forces would conduct offensive and defensive operations to gain access, ensure freedom of movement, and seize the initiative from the Chinese. Once the United States had secured access and freedom of action, they would transition to Phase III. During Phase III, the United States primary effort would be on dominating the environment and breaking China’s will to resist. After having set the conditions in Taiwan and defeated China’s aggression, the United States would transition to Phase IV, initiating stability efforts aimed to reestablish security and essential services in Taiwan. With conditions in Taiwan stabilized, the United States would transition to Phase V and enable the government of Taiwan to regain its ability to govern. Once the Taiwan government had regained its capacity to govern, the United States would transition back to a steady state Phase 0.⁷⁶

With the US force organization established along with the six-phase framework, it is now possible to describe likely SOF missions in the Taiwan scenario. There are 11 special operations core activities listed in JP 3-05, *Special Operations*. Table 1 provides a description of each core

⁷⁵ Ibid., I-5 to I-16.

⁷⁶ Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: Government Printing Office, 2011), V-8 to V-9.

activity. In the Taiwan scenario, the JSOTF would conduct different combinations of these activities during the different phases of the operation. Many of these activities would require the support of SOF air mobility assets. During Phase 0, SOF's primary efforts would be on foreign internal defense (FID) and security force assistance (SFA) in various parts of the region. To avoid crossing one of China's redlines, SOF would not be in Taiwan, but FID and SFA efforts in places like Korea, Japan, Thailand, and the Philippines would support US efforts to build partnerships and shape the operational environment to ensure they have access to the region through those nations.

Table 1. Special Operations Forces core activities

Core Activity	Description
Direct Action (DA)	Short duration strikes in hostile or denied environments to seize, destroy, capture, or exploit specific targets; usually time sensitive and require immediate withdraw
Special Reconnaissance (SR)	Actions in hostile or denied environments to collect or verify strategic or operational information; compliments national and theater intelligence to enhance the JFCs situational awareness
Counterproliferation (CP) of Weapons of Mass Destruction (WMD)	Actions to defeat the threat or use of WMD; includes nonproliferation, CP, and consequence management
Counterterrorism (CT)	Actions directly against terrorist networks and indirect actions to render environments inhospitable to terrorist networks
Unconventional Warfare (UW)	Actions that enable a resistance movement or insurgency to coerce, disrupt, or overthrow a government
Foreign Internal Defense (FID)	Activities to support a host nations internal defense and development; primary roles are to assess, train, advise, and assist the host nation forces
Security Force Assistance (SFA)	Activities to support the development of foreign security forces; similar to FID however SFA also prepares the force to defend against external threats and operate as part of an international force
Counter insurgency (COIN)	Actions to defeat an insurgency and address grievances; approach can be direct, indirect, or balanced
Information Operations	Employment of information-related capabilities to influence, disrupt, corrupt, or usurp an adversaries decision making; influence the perceptions of targeted audiences to shape their behavior
Military Information Support Operations	Planned operations to convey specific information to foreign audiences and influence their emotions, motives, reasoning, and behavior
Civil Affairs Operations	Actions to enhance the relationship between military forces and civil authorities; requires coordination with other non-military organizations

Source: JP 3-05, *Special Operations*, II-5 to II-19.

Once the United States became aware of China's covert action in Taiwan and transitioned to Phase I, SOF would continue to conduct FID and SFA in regional nations. Two additional activities the United States might task SOF with would be conducting UW operations along China's periphery and covertly supporting Taiwan's counter insurgency (COIN) effort.⁷⁷ As the United States transitioned from Phase I to Phase II with the intervention of the PLA into Taiwan, SOF's mission set increases significantly. During this phase, SOF would conduct direct action (DA) against key targets like buried command and control facilities that the United States cannot disable by other means. Another mission would be clandestine special reconnaissance (SR) to locate mobile high-value targets— such as China's SA-20 SAM and ballistic missile systems—for precision attack. A third activity would be information operations where the United States requires SOF to access China's closed communications and computer networks.⁷⁸ SOF would also begin to conduct overt COIN operations in support of the Taiwanese government.

The transition to Phase III would not change SOF's activities much initially. They would continue to conduct DA, SR, and COIN operations. However, at the end of Phase III, there would be a shift in effort back towards FID, SFA, and civil affairs operations as part of the US stability effort. During Phase V, most if not all SOF effort would be on FID, SFA, and civil affairs operations as the United States transitioned control back to the Taiwanese government. Every activity in each phase requires some form of SOF air mobility. The geographic nature of the Asia-Pacific region requires airlift for the insertion and extraction of ground forces or delivery of SOF specific equipment, material, or supplies.

⁷⁷ Robert Martinage, *Special Operations Forces: Future Challenges and Opportunities* (Washington, DC: Center for Strategic and Budgetary Assessments, 2008), 35-36.

⁷⁸ Martinage, *Special Operations Forces: Future Challenges and Opportunities*, 35-36; Jim Thomas and Chris Dougherty, *Beyond the Ramparts: The Future of U.S. Special Operations Forces* (Washington, DC: Center for Strategic and Budgetary Assessments, 2013), 64-67.

So far, the review of US doctrine has focused on the current JP series. While the JP series provides insight into how the United States would likely organize SOF forces, how it would frame the Taiwan conflict into six phases, and the missions SOF would likely conduct, it is equally important to review what the US military thinks it is likely to do in the future. Key concepts such as the Capstone Concept for Joint Operations (CCJO), JOAC, and Air-Sea Battle (ASB) represent the most current thinking as to how the United States plans to overcome the A2/AD challenge. These three concepts are hierarchical in nature. The CCJO provides the overall vision of how future forces would operate across the ROMO and describes the future operating environment. Under the CCJO is the JOAC. This concept describes broadly how the US military could achieve operational access in a contested environment. Under JOAC is ASB. The ASB concept identifies specific means and requirements to overcome A2/AD threats and maintain freedom of action.⁷⁹ Each of these concepts, summarized below, clarify how the United States might fight in the Taiwan scenario.

The CCJO offers “a high-order vision of how the future force will operate.”⁸⁰ It broadly describes the future operating environment, provides an overarching key concept to future operations, articulates key implications for the joint functions, and identifies potential risks in adopting the concept. There are aspects of each of these topics that will influence US operations in the joint environment. The CCJO describes the future environment as having persistent trends, such as regional instability and the rise of modern competitive states, and new challenges like the proliferation of A2/AD capabilities. The CCJO emphasizes the importance of the space and cyber domains and their potential threats. This description is consistent with the analysis of China’s

⁷⁹ US Department of Defense, *Air-Sea Battle: Service Collaboration to Address Anti-Access and Area Denial Challenges* (Washington, DC: Government Printing Office, 2013), 8.

⁸⁰ US Department of Defense, *Capstone Concept for Joint Operations: Joint Force 2020* (Washington, DC: Government Printing Office, 2012), 1.

strategy and doctrine. The concept of globally integrated operations is how the force should prepare for this environment. The goal of the concept is to enable the force to form networks of key capabilities rapidly to meet challenges.

Of the eight key elements listed in the CCJO, three are particularly relevant for the future Taiwan scenario. The first is global agility. Current joint operations typically begin by massing combat power at an intermediate location. In the Taiwan scenario, the United States likely will not have a suitable location to mass power close enough to Taiwan before conducting operations. China's ability to strike US bases makes massing of forces a vulnerability. The second key element is cross-domain synergy. Given the geography and AD/AD threat in the Taiwan scenario, the United States would have to project power across domains to gain an advantage. The final key element of globally integrated operations is the need for flexible, low-signature capabilities that are rapidly deployable, have operational reach, and can operate independently from a large logistical system. To execute this concept, the force has to improve its strategic and operational mobility, its capabilities to defeat anti-access and area denial threats, and maintain a rapidly employable, low-signature capability. Like any concept, there are risks in adopting globally integrated operations. The advanced technology may prove to be too expensive in a time of restricted budgets and the force may not achieve the required level of global agility required.⁸¹

Whereas the CCJO provides the overarching concept for future joint operations, the JOAC focuses on the problem of ensuring operational access in a contested environment. Like the CCJO, the JOAC defines the operating environment and military problem and expands on the concept of cross-domain synergy to meet the challenge. The JOAC describes the future environment as complex, uncertain, and rapidly changing. Within this environment are three significant trends that challenge operational access. The first trend is "the dramatic improvement

⁸¹ US Department of Defense, *Capstone Concept for Joint Operations*, 1-14.

and proliferation of weapons and other technologies capable of denying access to or freedom of action within an operational area.”⁸² Under this trend, the JOAC describes various A2/AD capabilities, all of which are consistent with China’s modernization efforts.

The second trend is the changes in the overseas posture of US forces. Due to decreasing support internationally for US bases and the costs of maintaining those bases, the United States’ overseas posture is shrinking. The Taiwan scenario highlights this trend with the limited number of US bases in the region. The final trend is the growing importance of the space and cyber domains. Again, China’s emphasis on space and cyber A2/AD capabilities highlights this trend.

The JOAC predicts that future enemies will adopt an A2/AD strategy and describes what that strategy might look like. It is likely no coincidence that each of the elements in the JOAC’s description matches elements of China’s strategy described in the previous section.⁸³ To meet this future, the JOAC expands on the idea of cross-domain synergy and offers 11 precepts that describe how the United States might gain access. Two of these precepts significantly influence how US SOF would operate in the Taiwan scenario. The first is to consider a variety of basing operations. China’s missile capability puts US bases in the region at risk so elements of the force must be prepared to operate without the use of forward bases.⁸⁴ The second precept is to “create pockets or corridors of local domain superiority to penetrate the enemy’s defenses and maintain them as required to accomplish the mission.”⁸⁵ Rather than attempting to maintain superiority over all of Taiwan, all of the time, the United States may have to create temporary space for SOF to operate.

⁸² US Department of Defense, *Joint Operational Access Concept*, 9.

⁸³ *Ibid.*, 13.

⁸⁴ *Ibid.*, 9-19.

⁸⁵ *Ibid.*, 23.

The ASB concept nests under and complements the precepts and capability requirements in the JOAC. ASB provides more specific means and requirements to overcome the A2/AD challenge. ASB focuses on aligning Service concepts and is inclusive of doctrine, organization, training, material, leadership, personnel, and facilities. It provides a detailed analysis of threat and a set of concepts describing how to counter an A2/AD strategy. ASB makes five assumptions that are consistent with this study's analysis of Chinese strategy and doctrine. First, it assumes that the adversary will initiate activities, such as ballistic missile strikes, with little warning. Second, because of this short notice, forward deployed forces will be in the A2/AD environment at the start of hostilities. This is true for US forces in Japan, Korea, and other parts of the region in the Taiwan scenario. Third, adversaries will attack territory supporting US operations. This is consistent with the scenario's assumption that China will strike US bases in Japan and Korea. Fourth, that the adversary will contest all domains. China's modernization efforts described previously support this assumption. Finally, the United States cannot completely cede any of the domains to the adversary. Each domain is capable of influencing and denying access in other domains. The central idea of ASB is networked, integrated, and attack-in-depth operations through cross-domain operations to disrupt, destroy, and defeat A2/AD capabilities. In the Taiwan scenario, SOF would play a critical role in this concept. Most of the SOF activities during Phase II and Phase III attack or enable other means to attack China's A2/AD capabilities in depth. The insertion of SOF by air mobility assets through the air domain into denied areas of the land domain to attack China's cyber network are a perfect example of cross-domain synergy.

US SOF Capabilities

Providing specialized air mobility is one of eight AFSOC core mission areas. This section surveys the primary air mobility systems used by US SOF. As the primary provider of specialized air mobility, AFSOC operates a range of uniquely equipped small and medium-sized aircraft. Aircraft include multiple variants of the MC-130, the CV-22, and three Non-Standard Aviation

(NSAv) airframes. Together these aircraft give AFSOC the capability to conduct covert or clandestine penetration of hostile or denied airspace; insert, extract, and resupply SOF through airland, airdrop, and alternate methods; provide air refueling to vertical lift platforms; and refuel fixed-wing aircraft inflight with strategic tankers.⁸⁶ Table 2 provides a summary of key aircraft capabilities.

Table 2. Current AFSOC mobility aircraft capabilities

Aircraft	Typical Range	Speed	Capacity
MC-130P Combat Shadow	3,200 nm (unrefueled) 2,800 nm (low-level)	220-290 kts	59 troops (airland) 24 troops (airdrop)
MC-130H Combat Talon II	2,700 nm (unrefueled)	260 kts	75 troops (airland) 50 troops (airdrop)
MC-130J Commando II	3,000 nm (unrefueled)	360 kts	75 troops (airland) 50 troops (airdrop)
CV-22 Osprey	1,500 nm (unrefueled)	240 kts	24-32 troops 10,000 lbs
PC-12	1,500 nm	270 kts	10 passengers 2,900 lbs
M-28 Skytruck	730 nm	220 kts	16 passengers 5,000 lbs
Do-328 Wolfhound	2,000 nm	335 kts	32 passengers 8,100 lbs

Source: Data extracted from *Special Operations Forces Reference Manual*, 5-17 to 5-36; “Special Operations Aircraft,” American Special Ops, accessed June 12, 2014, <http://www.americanspecialops.com/aircraft/>.

AFSOC operates three versions of the MC-130 aircraft, each with unique capabilities. All three versions are capable of inflight refueling of special operations helicopters and the infiltration, exfiltration and resupply of SOF. The oldest variant is the MC-130P Combat Shadow. The MC-130P employs night vision goggle low-level flight profiles as low as 300 feet above ground level. The MC-130P is equipped with basic self-protection systems limiting it to low-to

⁸⁶ *Special Operations Forces Reference Manual* (MacDill AFB, FL: The JSOU Press, 2011), 5-1, 5-2.

medium-threat environments. During refueling missions, the MC-130P usually flies in a multi-ship formation to provide additional fuel to receivers.⁸⁷ The MC-130H Combat Talon II is equipped with additional specialized equipment giving it additional capabilities over the MC-130P. The additional terrain-following/terrain-avoidance (TF/TA) radar gives the MC-130H an all-weather capability. Like the MC-130P, the Combat Talon II flies low-level profiles. Additional self-protection systems give the MC-130H an increased capability against enemy weapon systems but it is still limited to low and medium-threat environments.⁸⁸ The MC-130J Commando II is the newest aircraft in AFSOC. The MC-130J replaces the aging MC-130P, yet employment is the same as the MC-130P. Modern avionics give the MC-130J increased communication and data connectivity. The MC-130J has similar self-protection systems as the MC-130P and is limited to low- and medium-threat environments.⁸⁹ All three variants have multiple communication radios including satellite and over the horizon capabilities.

The CV-22 Osprey is a tiltrotor aircraft. It combines the capability of vertical takeoff, hover, and vertical landing with the long-range capability of fixed-wing aircraft. The Osprey's primary mission is conducting long-range infiltration, exfiltration, and resupply of SOF. The vertical capability gives the CV-22 the ability to insert and recover SOF from small helicopter landing zones. The CV-22 is capable of refueling with any of the MC-130 aircraft. It has a TF/TA radar that gives the Osprey an all-weather low-level capability. It is also equipped with an

⁸⁷ *Special Operations Forces Reference Manual*, 5-29 to 5-32.

⁸⁸ *Ibid.*, 5-17 to 5-23.

⁸⁹ "MC-130J Commando II," American Special Ops, accessed June 12, 2014, <http://www.americanspecialops.com/usaf-special-operations/aircraft/mc-130j-commando-2/>.

advanced electronic warfare suite giving the Osprey a self-protection capability in low and medium threat environments.⁹⁰

AFSOC employs three NSAv airframes to provide intra-theater airlift for small special operations teams. The PC-12, M-28 Skytruck, and Do-328 are light and medium-lift aircraft with similar capability to take off and land from short, unimproved runways. All three aircraft are equipped with specialized communication and navigation systems.⁹¹ These aircraft generally lack the self-protection systems on other AFSOC aircraft.

While aircraft capabilities are important, they are only part of the operational reach equation. The bases the aircraft operate out of are another key factor. Currently the United States has six main airbases in the Asia-Pacific region, two in South Korea, three in Japan, and one in Guam. Table 3 lists the great circle distances between current US bases in the Asia-Pacific region and the center of the Taiwan Strait.⁹² Comparing the aircraft ranges in Table 2 to the distances in Table 3, provides a better assessment of SOF air mobility's operational reach in the Taiwan scenario and a few key conclusions.

First, MC-130 aircraft are capable of reaching the Taiwan Strait unrefueled from Kadena, Kunsan, and Osan. They would require inflight refueling to operate out of the other three bases. Second, the CV-22 would require air refueling to operate out all but Kadena. Third, AFSOC's NSAv aircraft are extremely limited in their operational reach in the Taiwan scenario. The Do-328 is only capable of operating out of Kadena, Kunsan, and Osan. The only viable base for the PC-12 is Kadena and the M-28 would be unable to operate out of any of the current bases.

⁹⁰ *Special Operations Forces Reference Manual*, 5-35 to 5-36.

⁹¹ *Ibid.*, 5-36 to 5-37.

⁹² Great circle distances represent the shortest distance between two points on a sphere.

Table 3. Distances from US bases to the center of the Taiwan Strait

US Base	Distance to Taiwan Strait / Round Trip
Kadena, Japan	440 nm
Kunsan, South Korea	750 nm
Osan, South Korea	830 nm
Yakota, Japan	1,200 nm
Misawa, Japan	1,450 nm
Anderson, Guam	1,550 nm
Darwin, Australia	2,300 nm
Elmendorf, Alaska	4,120 nm
Joint Base Hickam-Pearl Harbor, Hawaii	4,470 nm
** For reference it is 2,100 nm from Los Angeles to New York City	

Source: Data extracted from Google Earth.

A2/AD Impact on SOF Air Mobility

This final section answers the final question of this study, what is SOF air mobility's capability in a Chinese A2/AD environment. Based on an assessment of the strategy, doctrine, and capabilities of China and the United States, SOF air mobility currently does not have the capability to conduct the missions the JFC would likely task them with in the Taiwan scenario. The challenges and limitations to SOF air mobility in an A2/AD environment fall into three areas. First, there are aircraft limitations that prevent SOF air mobility from operating in the airspace. Second, operational reach and basing limitations present a set of challenges to SOF air mobility. Finally, there are limitations and disconnects between doctrine, concepts, and capabilities that would challenge SOF air mobility.

Challenges and Limitations

The primary reason SOF air mobility would be unable to accomplish its required missions in the Taiwan scenario is the inherent limitations of current aircraft. None of the specialized mobility aircraft possess the ability to operate in the high threat environment that

China's IADS and other A2/AD systems create. The traditional method of survival for the MC-130 and CV-22 is detection avoidance navigation and threat avoidance navigation. Aircraft survival depends on avoiding detection by the enemy's IADS and selecting routes that keep the aircraft outside the effective range of enemy weapon systems. China's capability to detect low flying aircraft exceeds the capability of US SOF aircraft to avoid detection by systems like the KJ-2000. While the MC-130 and CV-22 are equipped with self-protection systems, these systems are not designed to penetrate weapon engagement zones (WEZs). China's advanced SAM systems like the SA-20 make threat avoidance more difficult and more important. The ability to move these systems prevents SOF air mobility crews from preplanning routes that avoid threats. If an aircraft were to enter the WEZ of one of these systems, it would have almost zero survivability. These SAM systems are capable of shooting down ballistic missiles. Engaging a large, low flying SOF air mobility aircraft would be relatively easy. In addition to the ground threat, China's air threat is a challenge to specialized mobility aircraft. The MC-130 and CV-22 have limited capability against an air threat. China's ability to employ capable fighter aircraft beyond its borders puts SOF air mobility aircraft at risk.

Operational reach and basing limitations present additional challenges to SOF air mobility. One challenge in the Taiwan scenario is determining where to base SOF air mobility aircraft. Given China's strike capability discussed earlier, all six bases are within range of Chinese ballistic missiles and within range of the PLAAF's H-6 bomber. Estimates show that China has enough ballistic missile capability to destroy defenses, parked aircraft, and runways at all five bases in Japan and South Korea.⁹³

⁹³ Hagen, *Potential Effects of Chinese Aerospace Capabilities on U.S. Air Force Operations*, 2.

An approach to this problem would be to base the aircraft beyond the range of China's strike capability. There are two flaws to this approach. First, increasing the distance between the operating bases and the objective would render all of the NSAv aircraft ineffective as they do not have the range and would increase the en-route flight times of the MC-130 and CV-22. For example, it would take a CV-22 at least 6.5 hours to reach Taiwan from Anderson airbase in Guam. Considering many of SOF's likely targets are dynamic and time sensitive, this option is prohibitive. The second flaw in removing aircraft from current bases in Japan and Korea is the impact it would have on the host nation. One of the key elements of the US approach is building strong relationships with its allies. Withdrawing US assets out of the Chinese threat and letting Japan and Korea accept all the risk is detrimental to this element. Not only is operational reach a challenge for SOF mobility aircraft, it is a challenge for other assets that are required to support SOF. The fighter aircraft required to escort SOF aircraft into and out of the denied airspace would require substantial inflight refueling to support the operational reach of SOF air mobility.

The final group of challenges relates to the doctrine and joint concepts designed to overcome the A2/AD threat. First is the idea of cross-domain effects. The JOAC calls for simultaneous operations in multiple domains along multiple lines of operation to achieve cross-domain synergy.⁹⁴ To operate as a networked, distributed force requires cross-domain coordination and synchronization at the tactical level. For SOF air mobility, this means coordinating effects in the air, land, sea, space, and cyber domains. This places a significant requirement on SOF C2 structures. The problem is China's capability and intent to target US C2 structures specifically in the Taiwan scenario. A concept that increases the requirement in an area that is the enemy's priority target seems counterintuitive.

⁹⁴ US Department of Defense, *Joint Operational Access Concept*, 37.

A second challenge is the disconnect between resource decisions and concept development. The concepts in the CCJO, JOAC, and ASB require development of new systems and capabilities. The defense budget to pay for these new systems and capabilities is likely to see additional cuts over the next decade. To move towards a concept that requires additional resources in a time where fewer resources are available is a risk.⁹⁵ It is possible, perhaps likely, that there simply will not be enough funding to develop the SOF air mobility capability to fight the Taiwan scenario in the short term. Both the CCJO and JOAC acknowledge this risk.⁹⁶

The USSOCOM budget process compounds the disconnect between resources and concepts. The acquisition structure of USSOCOM takes existing service platforms and systems and modifies them to meet USSOCOM's need. It is not designed for large cost programs. The Services are responsible for funding the basic system while USSOCOM pays for the modifications. This generates a structure where decisions are often based on who pays for what and not on capabilities or needs.⁹⁷ For example, the USAF funded the basic airframe for the MC-130J and CV-22 while USSOCOM funded the addition of unique equipment. As a result, the decision to include certain capabilities depended on whether or not USSOCOM could convince the USAF to pay for it as part of the basic system. As requirements grow under the joint concepts and available resources become scarcer, it will be harder for USSOCOM to acquire new systems and capabilities.

⁹⁵ Berteau and Green, *U.S. Force Posture Strategy in the Asia Pacific Region*, 90.

⁹⁶ US Department of Defense, *Capstone Concept for Joint Operations*, 14; US Department of Defense, *Joint Operational Access Concept*, 37.

⁹⁷ Rebecca Grant, Richard Comer, and Thomas P. Ehrhard, *Special Operations Forces Aviation at the Crossroads* (Washington, DC: Center for Strategic and International Studies, 2007), 23-25.

Finally, both the JOAC and ASB concepts focus on attacking the A2/AD threat in depth. This presents a challenge in the Taiwan scenario. One of the assumptions in the scenario is that China and the United States would seek to limit or avoid strikes on each other's territory to avoid escalating the conflict. This presents a problem. If national policy restricts striking targets in China due to escalation concerns, then the JOAC and ASB ideas are no longer viable. SOF air mobility depends on these attacks in depth to disrupt China's IADS. They also support SOF efforts to conduct attacks in depth against select targets. Returning to the assumption made in the Taiwan scenario, while national policy would permit special operations in China, these would not be possible without using conventional capabilities to strike in depth.

Recommendations

Aircraft limitations, challenges with operational reach and basing, and disconnects in joint concepts make operating in an A2/AD environment an extremely challenging task for SOF air mobility. To close the gap between current capability and future requirements, this section provides a few key recommendations. The first recommendation is to develop and acquire a low observable (LO) mobility aircraft with sufficient capacity and operational reach required in the Taiwan scenario. This has been a common recommendation from studies on SOF aviation over the last decade.⁹⁸ To support the joint concepts for countering the A2/AD threat, SOF require the ability to conduct covert or clandestine operations into denied airspace. The current fleet of aircraft is not capable of fulfilling this mission. The cost of acquiring an LO mobility aircraft will

⁹⁸ See US Department of Defense, *Quadrennial Defense Review Report* (Washington, DC: Government Printing Office, 2006), 45; Thomas and Dougherty, *Beyond the Ramparts: The Future of U.S. Special Operations Forces*, 99; Martinage, *Special Operations Forces: Future Challenges and Opportunities*, 62-67; Grant, Comer, and Ehrhard, *Special Operations Forces Aviation at the Crossroads*, 14; and William E. Saier, "The Advanced Special Operations Air Mobility Platform (M-X)," *Air and Space Journal*, (Spring 2005), 26-30.

exceed any previous USSOCOM project. Currently, USSOCOM would have to look at existing platforms operated by the services. This might have worked if the USAF had continued development of the next generation bomber. However, Defense Secretary Robert Gates terminated the program in 2009.⁹⁹ Acquiring a new LO mobility platform requires a restructure of the USSOCOM acquisition process and a single SOF aviation manager capable of reaching across USSOCOM and service budgets.¹⁰⁰

To overcome the challenge of basing and operational reach, the United States should expand the number of operating bases across Southeast Asia. A 2012 report by the Center for Strategic and International Studies estimated there are roughly 50 locations in the region that warrant consideration and require minimal construction. These locations would not be permanent facilities but would be available to distribute SOF air mobility across a wider range in the Taiwan scenario.¹⁰¹ Increasing the number of suitable airbases in the region would reduce China's ability to deny United States the use of airpower. There are limits to the advantage of distributing the special operations mobility aircraft. SOF air mobility's task is to move SOF and their equipment. To do so requires that the troops or equipment be collocated with the aircraft during loading. While the aircraft could bed down in different locations, they would ultimately have to link up with SOF at a common airfield.

In addition to securing access to additional locations, the United States should work with Japan and South Korea to harden airfield facilities at current US bases. Increasing the protection of hangars, maintenance facilities, C2 infrastructure, and fuel storage would decrease the impact

⁹⁹ Thomas and Dougherty, *Beyond the Ramparts*, 154.

¹⁰⁰ Grant, Comer, and Ehrhard, *Special Operations Forces Aviation at the Crossroads*, 10.

¹⁰¹ Berteau and Green, *U.S. Force Posture Strategy in the Asia Pacific Region*, 75.

of China's missile strikes on SOF operations.¹⁰² Increasing the resiliency of US bases in allied countries has the mutual benefit of supporting the host nation while helping advance US efforts to strengthen its partnerships.

To address the conceptual challenges this study offers three recommendations. First, to meet the C2 challenge of cross-domain synergy and distributed operations, the United States should develop a distributed C2 structure. *An Analysis of Special Operations Command – South's Distributive Command and Control Concept* examines one way in which SOF C2 can support distributed operations.¹⁰³ While the analysis looked at Special Operations Command – South's structure from fighting the war on terrorism, many of the characteristics would support the distributed and integrated operations required in the Taiwan scenario.

Second, to address the disconnect between funding decisions and concept development, USSOCOM needs to continue to validate concepts through war gaming and joint exercises. If there is a gap between current capability and expectations under the joint concepts — as this study suggests — the United States has two options. The first option is to increase the resources available to develop an LO mobility aircraft and address basing challenges. The second option is to adjust the strategic ends driving doctrine and concepts to reflect SOF air mobility's current capability. Either option will ensure that the means support the ways and ends.

Finally, this study recommends the United States expand its non-kinetic options for conducting attacks in depth on A2/AD systems. Reliance on kinetic options presents a dilemma where the actions necessary to overcome the A2/AD threat could potentially escalate the conflict. Should the United States be unwilling or unable to make the financial and conceptual changes

¹⁰² Ibid., 77.

¹⁰³ Christian M. Averett, Louis A. Cervantes, and Patrick M. O'Hara, "An Analysis of Special Operations Command-South's Distributive Command and Control Concept" (master's thesis, Naval Post Graduate School, 2007), v.

needed to overcome Chinese A2/AD strategies, its best next option might be a reconsideration of the costs it is willing to absorb in support of its stated interests with a parallel discussion of whether those interests remain valid in the face of Chinese resistance

Conclusion

Special operations are a critical part of the US approach to war. The United States expects SOF to provide unique capabilities and accomplish tasks that conventional forces are not trained or equipped to carry out. An integral part of special operations is the specialized air mobility aircraft responsible for ensuring SOF access to denied areas. China's modernization and A2/AD strategy challenges SOF air mobility's access. This study concludes that China's A2/AD strategy has significantly reduced the operational access of US SOF air mobility to the point where AFSOC assets are no longer able to provide the access required. The current limitations of AFSOC's aircraft, the limited operational reach and basing options in the Asia-Pacific region, and the challenges associated with US doctrine and joint concepts in an A2/AD environment would likely prevent US SOF air mobility from accomplishing the missions required. To correct this deficiency, the United States should look to acquire an LO mobility aircraft, expand the number of operating bases in the Asia-Pacific theater, and develop a distributed C2 structure.

Bibliography

- Allen, Kenneth and Maryanne Kivlehan-Wise. "Implementing PLA Second Artillery Doctrinal Reforms." In *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army*, edited by James Mulvenon and David Finkelstein, 159-203. Alexandria, VA: The CNA Corporation, 2005.
- Averett, Christian M., Louis A. Cervantes, and Patrick M. O'Hara. "An Analysis of Special Operations Command-South's Distributive Command and Control Concept." Master's thesis, Naval Post Graduate School, 2007.
- Beck, Nathaniel. "The Illusion of Cycles in International Relations." *International Studies Quarterly* 35, no. 4 (December 1991): 455-76.
- Berteau, David J., and Michael J. Green. *U.S. Force Posture Strategy in the Asia Pacific Region: An Independent Assessment*. Washington, DC: Center for Strategic and International Studies, 2012.
- Bi Jianxiang. "Joint Operations: Developing a New Paradigm." In *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army*, edited by James Mulvenon and David Finkelstein, 29-78. Alexandria, VA: The CNA Corporation, 2005.
- Cheng, Dean. "Chinese Lessons From the Gulf Wars." In *Chinese Lessons from Other Peoples' Wars*, edited by Andrew Scobell, David Lai, and Roy Kamphausen, 153-199. Carlisle, PA: Strategic Studies Institute, 2011. Accessed September 2, 2014, <http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB1090.pdf>.
- . "Zhanyixue and Joint Campaigns." In *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army*, edited by James Mulvenon and David Finkelstein, 101-118. Alexandria, VA: The CNA Corporation, 2005.
- Cooper, Cortez A. *Joint Anti-Access Operations*. Santa Monica, CA: RAND Corporation, 2011.
- Cordesman, Anthony, Ashley Hess, and Nicholas S. Yarosh. *Chinese Military Modernization and Force Development: A Western Perspective*. Washington, DC: Center for Strategic and International Studies, 2013.
- Donilon, Tom. "The United States and the Asia-Pacific in 2013" (speech). The Asia Society, New York, March 11, 2013. Accessed June 10, 2014. <http://www.whitehouse.gov/the-press-office/2013/03/11/remarks-tom-donilon-national-security-advisory-president-united-states-a>.
- Easton, Ian. "China's Military Strategy in the Asia-Pacific: Implications for Regional Stability" (paper presented at the Seminar on China's Military Strategy, Tokyo, September 26, 2013). Accessed September 9, 2014. http://www.project2049.net/documents/China_Military_Strategy_Easton.pdf.

- Feickert, Andrew. *The Unified Command Plan and Combatant Commands: Background and Issues for Congress*. Washington, DC: Congressional Research Service, 2013.
- Finkelstein, David M. "Thinking About the PLA's Revolution in Doctrinal Affairs." In *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army*, edited by James Mulvenon and David Finkelstein, 1-28. Alexandria, VA: The CNA Corporation, 2005.
- Flaherty, Michael. "Red Wings Ascendant: The Chinese Air Force Contribution to Antiaccess." *Joint Force Quarterly* 60 (1st Quarter 2011): 95-101.
- Fravel, M. Taylor. "The Evolution of China's Military Strategy: Comparing the 1987 and 1999 Editions of *Zhanlüexue*." In *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army*, edited by James Mulvenon and David Finkelstein, 79-100. Alexandria, VA: The CNA Corporation, 2005.
- Freier, Nathan. *Beyond the Last War: Balancing Ground Forces and Future Challenges Risk in USCENTCOM and USPACOM*. Washington, DC: Center for Strategic and International Studies, 2013.
- Grant, Rebecca, Richard Comer, and Thomas P. Ehrhard. *Special Operations Forces Aviation at the Crossroads*. Washington, DC: Center for Strategic and International Studies, 2007.
- Hagen, Jeff. *Potential Effects of Chinese Aerospace Capabilities on U.S. Air Force Operations*. Santa Monica, CA: RAND Corporation, 2010.
- IHS Janes. "Jane's Sentinel Security Assessment – China and Northeast Asia." IHS Janes. Accessed June 16, 2014. <https://janes.ihs.com>.
- Joint Publication 1, *Doctrine for the Armed Forces of the United States*. Washington, DC: Government Printing Office, 2013.
- Joint Publication 3-0, *Special Operation*. Washington, DC: Government Printing Office, 2011.
- Joint Publication 3-05, *Special Operations*. Washington, DC: Government Printing Office, 2011.
- Joint Special Operations University. *Special Operations Forces Reference Manual*. MacDill AFB, FL: The JSOU Press, 2011.
- Mao Tse-Tung. *Selected Works of Mao Tse-Tung, Vol. 1*. Peking: Foreign Languages Press, 1975.
- Martinage, Robert. *Special Operations Forces: Future Challenges and Opportunities*. Washington, DC: Center for Strategic and Budgetary Assessments, 2008.
- "MC-130J Commando II," American Special Ops. Accessed June 12, 2014. <http://www.americanspecialops.com/usaf-special-operations/aircraft/mc-130j-commando-2/>.
- Obama, Barack. "U.S. Military Academy-West Point" (Presidential speech, United States Military Academy Commencement Ceremony, West Point, NY, May 28, 2014).

- Accessed June 3, 2014. <http://www.whitehouse.gov/the-press-office/2014/05/28/remarks-president-united-states-military-academy-commencement-ceremony>.
- Saier, William E. "The Advanced Special Operations Air Mobility Platform (M-X)." *Air and Space Journal*, (Spring 2005): 26-30.
- Scobell, Andrew, and Andrew J. Nathan. "China's Overstretched Military." *The Washington Quarterly* 35, no. 4 (Fall 2012): 135-148. Accessed June 15, 2014. <http://dx.doi.org/10.1080/0163660X.2012.726438>.
- "Special Operations Command, Pacific," SOCPAC. Accessed June 4, 2014. <http://www.socpac.socom.mil/default.aspx>.
- Stokes, Mark A. "The Chinese Joint Aerospace Campaign: Strategy, Doctrine, and Force Modernization." In *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army*, edited by James Mulvenon and David Finkelstein, 221-306. Alexandria, VA: The CNA Corporation, 2005.
- Thies, Wallace J., and Patrick C. Bratton. "When Governments Collide in the Taiwan Strait." *The Journal of Strategic Studies* 27, no. 4 (December 2004): 572-576. Accessed June 15, 2014. <http://dx.doi.org/10.1080/1362369042000314510>.
- Thomas, Jim, and Chris Dougherty. *Beyond the Ramparts: The Future of U.S. Special Operations Forces*. Washington, DC: Center for Strategic and Budgetary Assessments, 2013.
- US Army TRADOC G-2. *Worldwide Equipment Guide Volume 2: Airspace and Air Defense Systems*. Washington, DC: Government Printing Office, 2011.
- US Congress. Senate. *China's Emergent Military Aerospace and Commercial Aviation Capabilities: Hearing before the U.S.-China Economic and Security Review Commission*. 111th Cong., 2d sess., May 20, 2010.
- US Department of Defense. *Air-Sea Battle: Service Collaboration to Address Anti-Access and Area Denial Challenges*. Washington, DC: Government Printing Office, 2013.
- . *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2013*. Washington, DC: Government Printing Office, 2013.
- . *Capstone Concept for Joint Operations: Joint Force 2020*. Washington, DC: Government Printing Office, 2012.
- . *Joint Operational Access Concept*. Washington, DC: Government Printing Office, 2012.
- . *Quadrennial Defense Review 2014*. Washington, DC: Government Printing Office, 2014.
- . *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*. Washington, DC: Government Printing Office, 2012.
- US Department of State. "Joint Statement Following Discussions With Leaders of the People's Republic of China." US Department of State: Office of the Historian, February 27, 1972.

- Accessed September 9, 2014. <https://history.state.gov/historicaldocuments/frus1969-76v17/d203>.
- . “U.S. Relations with South Korea.” US Department of State, January 31, 2014. Accessed June 15, 2014. <http://www.state.gov/r/pa/ei/bgn/2800.htm>.
- . “U.S. Relations with Taiwan.” US Department of State, February 12, 2014. Accessed June 15, 2014. <http://www.state.gov/r/pa/ei/bgn/35855.htm>.
- Warden III, John A. *The Air Campaign*. San Jose, CA: toExcel Press, 2000.
- White House. *National Security Strategy*. Washington, DC: Government Printing Office, 2010.
- “353rd Special Operations Group Units.” 353rd SOG. Accessed June 4, 2014. <http://www.353sog.af.mil/units/index.asp>.